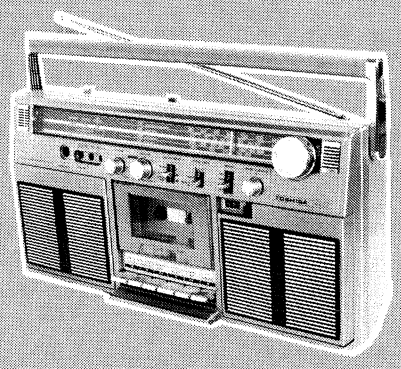
SERVICE DATA
FILE NO. 113-260
SUPPLEMENT A

TOSHIBA

STEREO RADIO CASSETTE RECORDER

RT-S702/S702D



This supplement contains the information of the exclusive parts for the above models. Please refer to the original SERVICE DATA Model RT-S712D FILE NO. 110-254 as to other informations.

Specifications are quite same as the originals.

Symbol No.	Part No.	Description
		CABINET PARTS
301	25881170	Cabinet Front Ass'y, S702D-TE, TU
301	25881171	Cabinet Front Ass'y, S702-TE
302	25881058	Cabinet Back Ass'y
303	25828953	Nameplate, Main S702D-TE, TU
303	25828954	Nameplate, Main S702-TE
330	25828955	Dial Plate
		ACCESSORY
AC03	22902986	Owner's Manual, S702/S702D-TE
AC04	22902987	Owner's Manual, S702D-TU
		EXCLUDED PARTS
W3, 4	22152308	Speaker, Tweeter, SP-04T2C

TE, TU

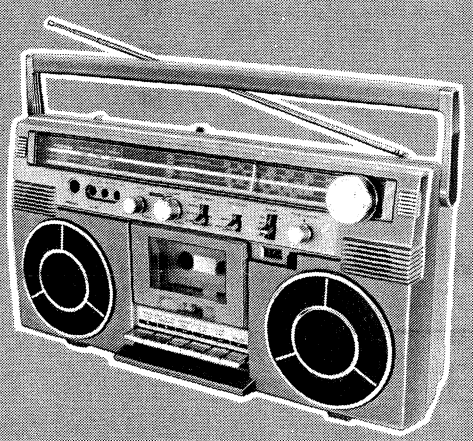
PRINTED IN JAPAN 22955996 Feb., 1981 (B)

SERVICE DATA
FILE NO. 110-254

TOSHIBA

STEREO RADIO CASSETTE RECORDER

RT-S712D



SPECIFICATIONS

Cassette tape used:	C-30, C-60, C-90, C-120	Speaker:	120mm (dia.) dynamic x 2 40mm (dia.) dynamic x 2
Tape speed:	4.8 cm/sec.	Jack:	[MIC] jack x 2, Impedance 200 — 2K ohm [EXT SP] jack x 2, Impedance 3.2 — 8 ohm [PHONES] jack headphone
Track system:	Four-track two-channel stereophonic		
Recording system:	AC bias (55 kHz)		
Erasing system:	Multipolar magnet erasing		
Frequency response:	60 Hz to 10 kHz		
Receiving frequency:	FM: 88 — 108 MHz MW: 525 — 1605 kHz SW: 5.9 — 15.4 MHz LW: 145 — 270 kHz	Power supply:	AC 220V — 240V, 50 Hz DC 9V (SUM-1 "D" size x 6)
		Power consumption:	13W
		Power output:	2W x 2, 10% Distortion
Intermediate frequency:	FM: 10.7 MHz MW, SW, LW: 460 kHz	Dimensions (mm):	(W)440 x (H)220 x (D)110
		Weight:	3.5 kg (without batteries)
	FM, SW: telescopic antenna MW, LW: ferrite-core antenna		

Specifications are subject to change without notice.

TE, TU

CONTENTS

1. BLOCK DIAGRAM 2
2. OPERATING CONTROLS 3
3. DISASSEMBLY INSTRUCTIONS 4
4. ALIGNMENT INSTRUCTIONS ..... 5 to 8
5. DIAL CORD RESTRINGING 9
6. HANDLE REMOVAL 9
7. METHOD OF P.R.C. REPAIRING 9
8-1. MECHANISM EXPLODED VIEW (UPPER) 10
8-2. MECHANISM EXPLODED VIEW (LOWER) 13
9. ELECTRICAL PARTS LOCATIONS 11
10. SCHEMATIC DIAGRAM 12
11. CABINET EXPLODED VIEW 14
12. PARTS LIST ..... 15 to 18

1. BLOCK DIAGRAM

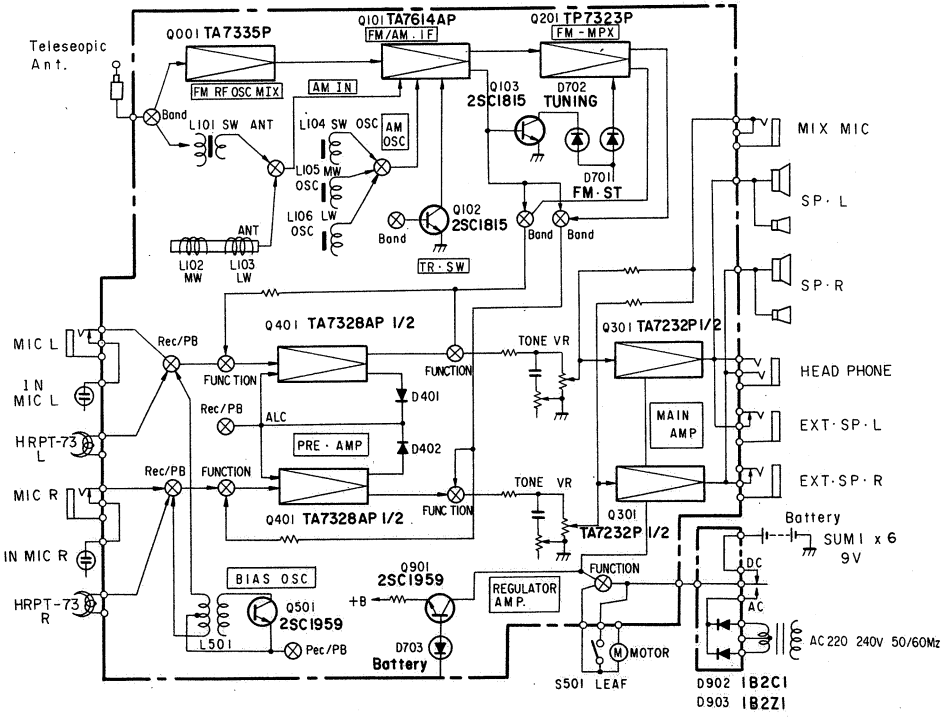
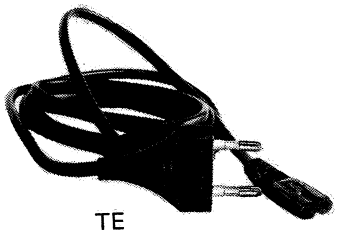


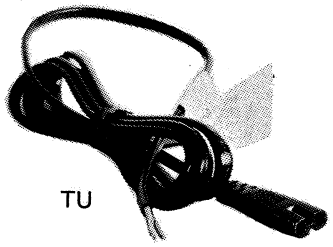
Figure 1.

Nameplate

Power Supply Cord



TE



TU

2. OPERATING CONTROLS

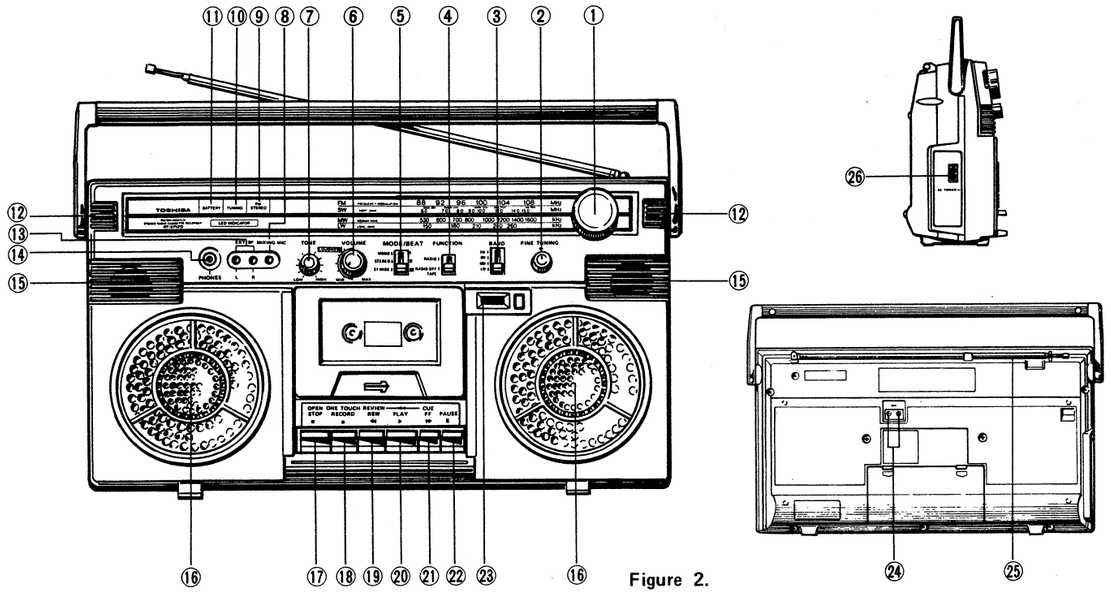


Figure 2.

① **Tuning Knob**

② **[FINE TUNING]**
Control knob

③ **[BAND] Selector**
For selecting FM, SW, MW, LW.

④ **[FUNCTION] Selector**
Select the desired programme source with this switch.

⑤ **[MODE/BEAT] Selector**
Switch to the MONO position for monaural listening, and to the STEREO position for stereo listening. In the ST-WIDE position, an even greater stereo effect is produced.
When a beat noise is generated while recording radio boradcasts in the LW or MW bands, this beat can be minimized or removed altogether by changing the beat switch position.

⑥ **[VOLUME] Control**
Turn to adjust the volume of sound from the speakers and headphones. In the loudness section (indicated by the heavy line) the bass and treble tones will be automatically increased to give natural listening at lower volume levels.

⑦ **[TONE] Control**
Turn to adjust the tonal quality of the sound from the speakers and headphones.

⑧ **[MIXING MIC] Jack**
For playback mixing, connect a microphone to this jack with a 3.5 mm plug cord.

⑨ **[FM STEREO] Indicator**
When an FM stereo broadcast is correctly tuned, this indicator lights (irrespective of [MODE/BEAT] selector ⑤ setting).

⑩ **[TUNING] Indicator**
This indicator lights when a broadcasting station is correctly tuned.

⑪ **[BATTERY] Indicator**
When the set is on, this indicator will remain lit while battery power is sufficient. (Note that it also lights when mains power is connected.)

⑫ **Built-in Microphones**

⑬ **[EXT SP] Jacks**
External speakers of impedance 3.2 to 8 ohm can be plugged into these jacks.

⑭ **[PHONES] Jack**
Plug headphones into this jack for stereo listening on headphones. When the plug is inserted the speakers are switched off.

⑮ **Tweeter Speakers**

⑯ **Woofer Speakers**

⑰ **[■STOP/OPEN] Key**
To stop the tape running, press this key. Press a second time to open the cassette compartment.

⑱ **[●ONE TOUCH RECORD] Key**
When this key is depressed, the [▶PLAY] key is also locked, thereby starting recording.

⑲ **[◀◀ REW/REVIEW] Key**
Press to fast rewind the tape. When pressed while the [▶PLAY] key is still locked, the tape will rewind rapidly but only while the key is held down. As soon as the key is released, the tape will resume play back.

⑳ **[▶PLAY] Key**
Depressing this key starts playback.

㉑ **[▶▶ FF/CUE] Key**
To rapid forward wind the tape depress this key. When pressed while the [▶PLAY] key is still depressed, the tape winds in the fast forward mode only while this key is held down, normal playback starts again when this key is released.

㉒ **[II PAUSE] Key**
The tape stops temporarily during either recording or playback when the [II PAUSE] key is depressed. Tape transport starts again when this key is pressed a second time.

㉓ **Tape Counter**
If the counter reading is noted at the start of a recording, it is easier to subsequently locate the starting point.

㉔ **[MIC] Jacks**
Microphones fitted with 3.5 mm pin (external diameter) plugs may be plugged into these jacks.

㉕ **Telescopic Antenna**
When tuning to FM/SW radio stations, the orientation and length of this antenna should be adjusted to obtain best reception.

㉖ **[AC POWER] Socket**

3. DISASSEMBLY INSTRUCTIONS

FRONT PANEL REMOVAL

1. Remove 7 screws Ⓐ.
2. Remove the 7 Knobs (Tone, Volume, Mode, Function, Band, Fine Tuning and Tuning).
3. Separate the front panel from the cabinet back.

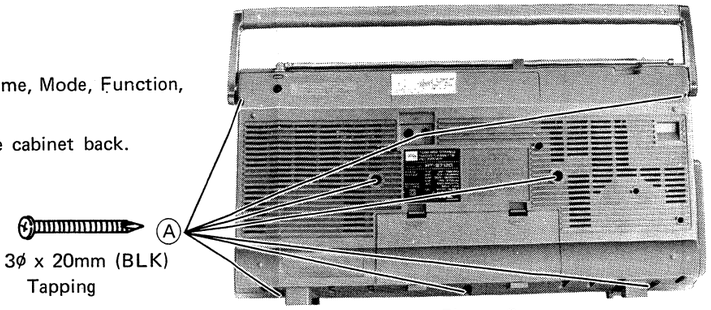


Figure 3.

MECHANICAL ASS'Y REMOVAL

1. Remove 4 screws Ⓑ.
   Separate the mechanical ass'y from the cabinet back.

DIAL PLATE REMOVAL

1. Remove 2 screws Ⓒ and Ⓓ.
   Separate the dial plate from the cabinet back.

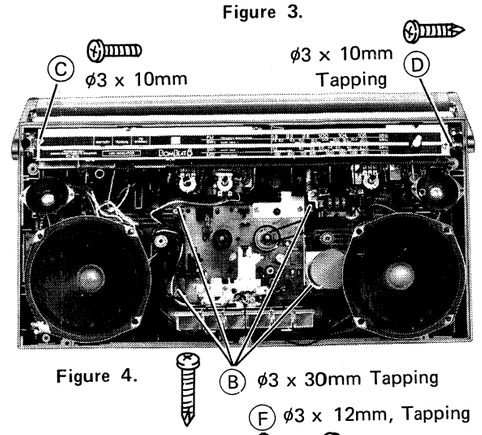


Figure 4.

P.C. BOARD REMOVAL

1. Remove 4 screws Ⓔ and Ⓕ.
2. Restore 2 hooks Ⓖ.
3. Separate the P.C. Boards (power, LED and main) from the cabinet back.

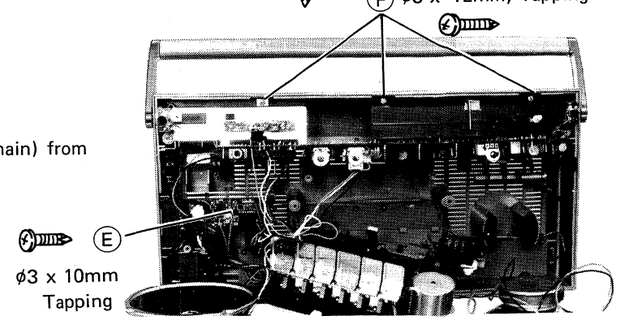


Figure 5.

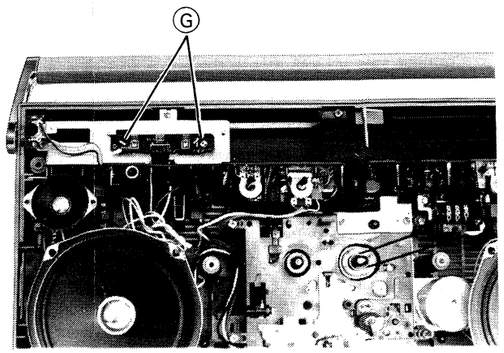


Figure 6.

4. ALIGNMENT INSTRUCTIONS

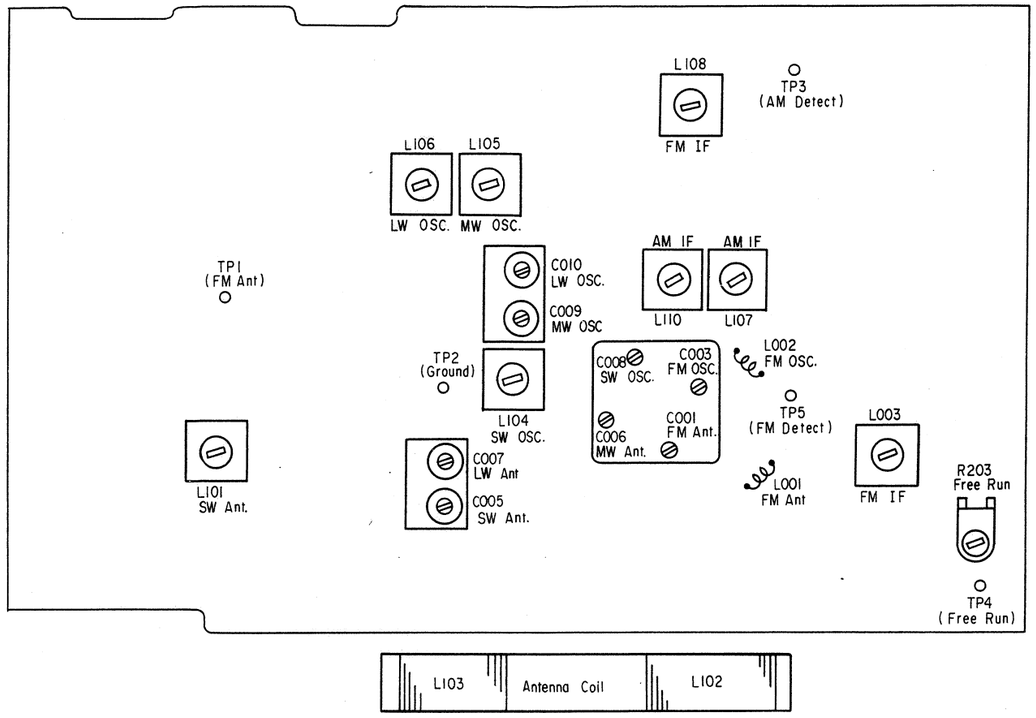


Figure 7.

TEST EQUIPMENT

1. Signal generator with a frequency range of at least from 140 kHz to 17 MHz AM.
2. Oscilloscope with a wide range amplifier of approximately 100 kHz.
3. Test loop – a coil of any size wire, one turn or more. (MW)
4. A 30 ohm dummy antenna. (SW)
5. VTVM

AM ALIGNMENT

1. Turn on the AM signal generator and the VTVM allowing a fifteen-minute warm-up period.
2. Using the test loop across the output of the signal generator, inductively connect the signal generator to the radio.
3. Connect the VTVM across the voice coil or a 4 ohm dummy load.
4. Set signal generator frequency as listed in ALIGNMENT CHART and maintain a sufficient output level to provide an indication on VTVM.
5. Set volume control at mid-position.
6. Proceed as outlined in the IF-LW, MW and SW ALIGNMENT CHARTS.

MW ALIGNMENT CHART

Band	Step	Signal Generator Frequency	Radio Dial Setting	Adjustment	Remarks
IF	1	460 kHz	Tuning Gang Fully Counter-clockwise (Lowest Frequency)	L107 L110	Adjust for maximum indication.
MW	2	510 kHz	Tuning Gang Fully Counter-clockwise (Lowest Frequency)	OSC. coil L105 (MW)	Adjust for maximum indication.
	3	1650 kHz	Tuning Gang Fully clockwise (Highest Frequency)	OSC. Trim C009	Adjust for maximum indication.
	4	Repeat steps 2 and 3 as required.			
	5	600 kHz	Tune to Signal.	Ant. Coil L102 (MW)	Adjust for maximum indication.
	6	1400 kHz	Tune to Signal.	Ant. Trim. C006	Adjust for maximum indication.
	7	Repeat steps 5 and 6 as required.			

LW/SW ALIGNMENT CHART

Band	Step	Signal Generator Frequency	Radio Dial Setting	Adjustment	Remarks
LW	1	142 kHz	Tuning Gang Fully Counter-clockwise (Lowest Frequency)	OSC. Coil L106 (LW)	Adjust for maximum indication.
	2	280 kHz	Tuning Gang Fully Clockwise (Highest Frequency)	OSC. Trim. C010	Adjust for maximum indication.
	3	Repeat steps 1 and 2 as required.			
	4	160 kHz	Tune to Signal.	Ant. Coil L103 (LW)	Adjust for maximum indication.
	5	280 kHz	Tune to Signal.	Ant. Trim. C007	Adjust for maximum indication.
	6	Repeat steps 4 and 5 as required.			
SW	1	5.75 MHz	Tuning Gang Fully Counter-clockwise (Lowest Frequency)	OSC. Coil L104 (SW)	Adjust for maximum indication.
	2	16 MHz	Tuning Gang Fully Clockwise (Highest Frequency)	OSC. Trim. C008	Adjust for maximum indication.
	3	Repeat steps 1 and 2 as required.			
	4	6.5 MHz	Tune to Signal.	Ant. Trim. L101 (SW)	Adjust for maximum indication.
	5	14 MHz	Tune to Signal.	Ant. Trim. C005	Adjust for maximum indication.
	6	Repeat steps 4 and 5 as required.			

FM-IF ALIGNMENT

1. Set the select switch to FM position.
2. Turn on both sweep generator and oscilloscope, and allow a fifteen-minute warm-up period.
3. Connect the RF SWEEP SIGNAL OUTPUT from the signal generator through the loop antenna to the receiver.
4. Connect the oscilloscope vertical input directly to the test point TUN OUT H and connect the shielded lead to the test point E or chassis ground.
5. Connect the SWEEP VOLTAGE OUTPUT of the sweep generator to the oscilloscope.
6. Proceed as outlined in the FM-IF ALIGNMENT CHART.

FM-IF ALIGNMENT CHART

Step	Signal coupling	Equip.	Tuning	Connection	Adjust. point	Pattern
1	Connect sweep generator output to a three-turn loop antenna of 10cm diameter.	Sweep generator of 10.7 MHz center freq. with 10.7 MHz marker.	Tuning Knob fully counter-clockwise (Lowest Frequency.)	Set scope for connecting output signal from TUN OUT to vertical axis of scope "V" and sweep generator output to horizontal axis "H".	L003 L108	Turn the coil L108 fully counterclockwise to obtain a single peak. Fig. 9 Adjust coil L003 in order until the best single peak is obtained. Finally turn the coil L108 to obtain S curve. Fig. 10

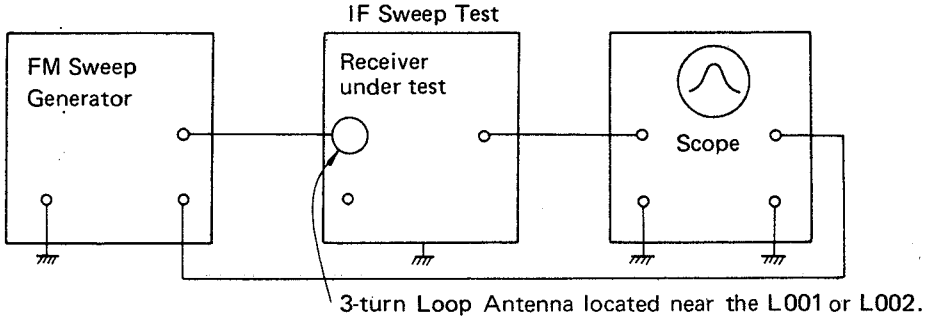


Figure 8.

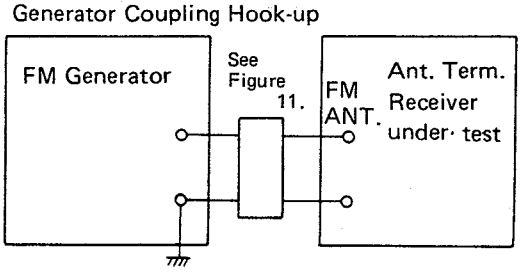


Figure 9.

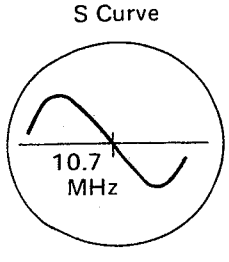


Figure 10.

FM-RF ALIGNMENT

1. Turn on the signal generator and the VTVM, and allow a fifteen-minute warm-up period.
2. Connect the signal generator output through a 75 ohm dummy antenna across FM ANT.
3. Connect the VTVM across the voice coil or an 8 ohm dummy load.
4. Set the volume control to mid-position.
5. Adjust the signal generator frequency as indicated in FM-RF ALIGNMENT CHART, and maintain a sufficient signal output level to provide a measurable indication.
6. Proceed as outlined in the FM-RF ALIGNMENT CHART.

FM-RF ALIGNMENT CHART

Step	Signal Generator	Radio Dial Setting	Adjustment	Remarks
1	87.5 MHz	Tuning Knob fully Counterclockwise (Lowest Frequency)	OCS. Coil L002	Adjust for maximum output indication
2	105 MHz	Tuning Knob fully Clockwise (Highest Frequency)	OSC. Trim. C003	Adjust for maximum output indication
3	Repeat steps 1 and 2 as required.			
4	90 MHz	Tune to signal	Ant. Coil L001	Adjust for maximum output indication
5	102 MHz		Ant. Trim. C001	
6	Repeat steps 4 and 5 as required.			

CAUTION: When realigning the FM Receiving Frequency, the lowest side of the frequency range must not be below 87.5 MHz in order to comply with FTZ requlations in West Germany.

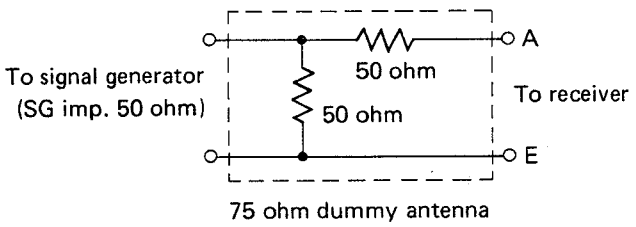


Figure 11.

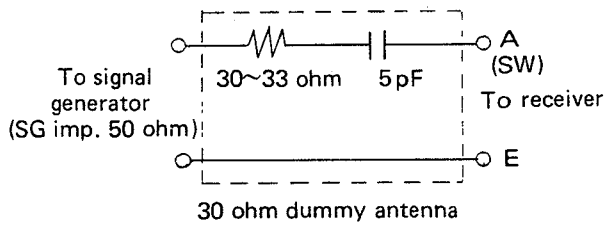


Figure 12.

FREE RUN FREQUENCY ALIGNMENT

Adjust R203 under no signal condition so as to obtain 76 kHz ± 150 Hz.

RECORD/PLAYBACK HEAD ADJUSTMENT

A 6.3 kHz standard tape must be used for this adjustment. Connect a VTVM or an oscilloscope to the EXT Speaker jack and adjust the azimuth by using a phillips screwdriver to maintain the maximum output voltage.

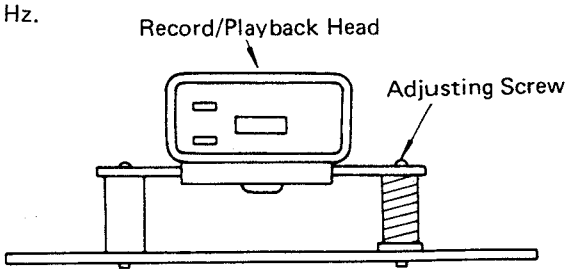


Figure 13. Record/Playback Head Adjustment

5. DIAL CORD RESTRINGING

1. Turn the shaft of variable capacitor fully clockwise.
2. Set the dial drum on the shaft of variable capacitor with a screw.
3. Insert the dial cord through the dial drum eye and wind the cord in the numerical stringing sequence indicated in the diagram.
4. Hook the drum spring on the dial drum.
5. Adjust the pointer to "0" with the tuning shaft turning extremely counterclockwise.

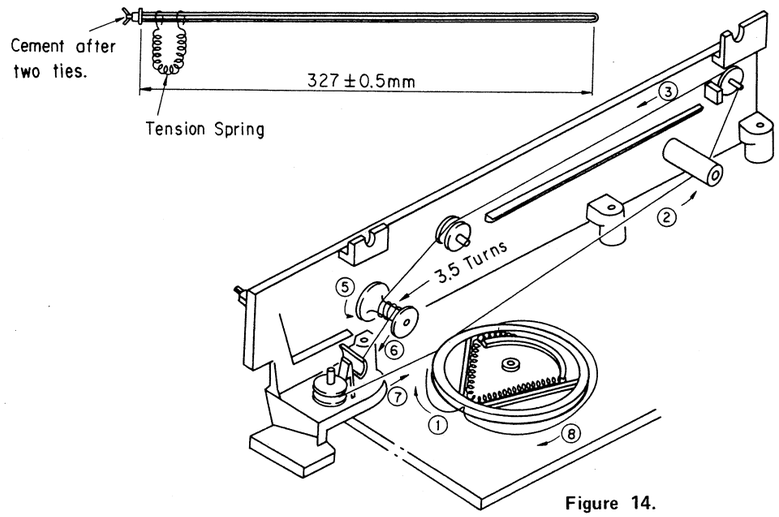


Figure 14.

6. HANDLE REMOVAL

When replacing the handle, remove it by cutting the handle washer shown in figure below with cutter etc.

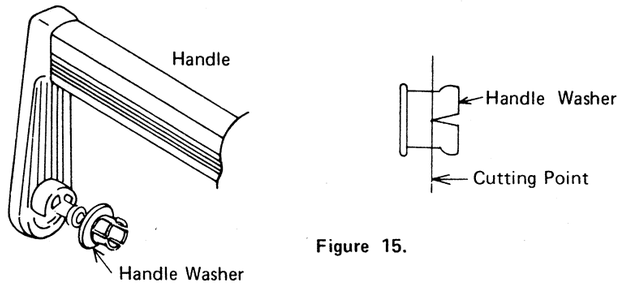


Figure 15.

7. METHOD OF P.R.C. REPAIRING

Cut defective printed-resistor-circuit off by knife. See Figure 16. Solder the replacement resistor (See replacement resistor parts list) on the opposite side of printed-circuit-board. See Figure 17.

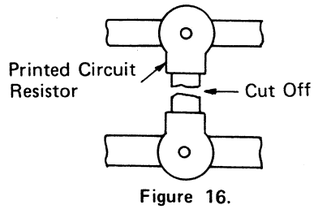


Figure 16.

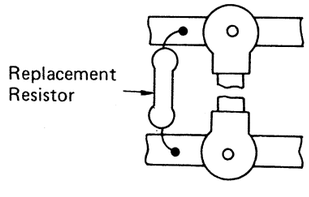


Figure 17.

8-1. MECHANISM EXPLODED VIEW (UPPER)

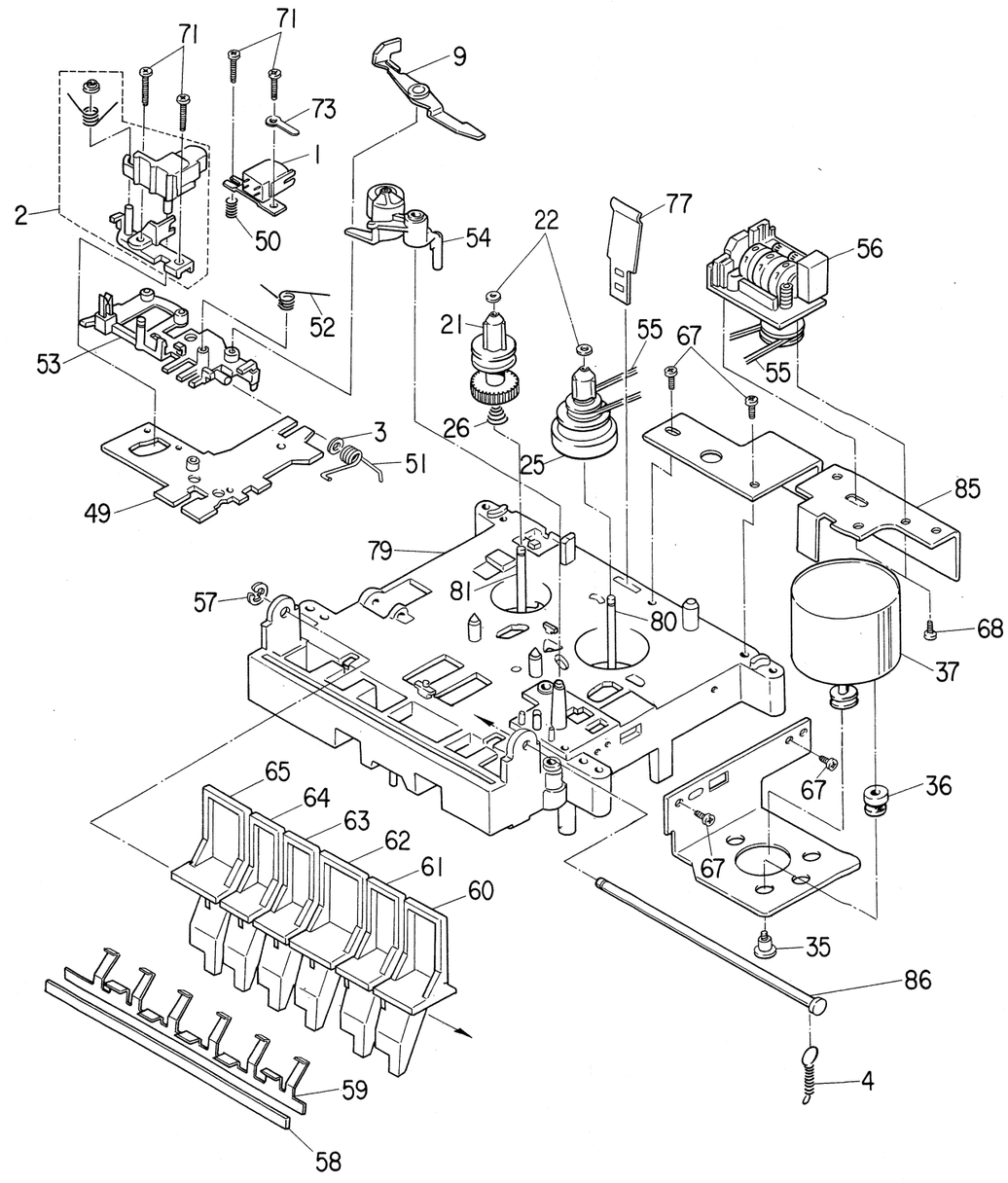


Figure 18.

NOTE: Excluded parts in the Parts List are not available as replacement parts.

9. ELECTRICAL PARTS LOCATIONS

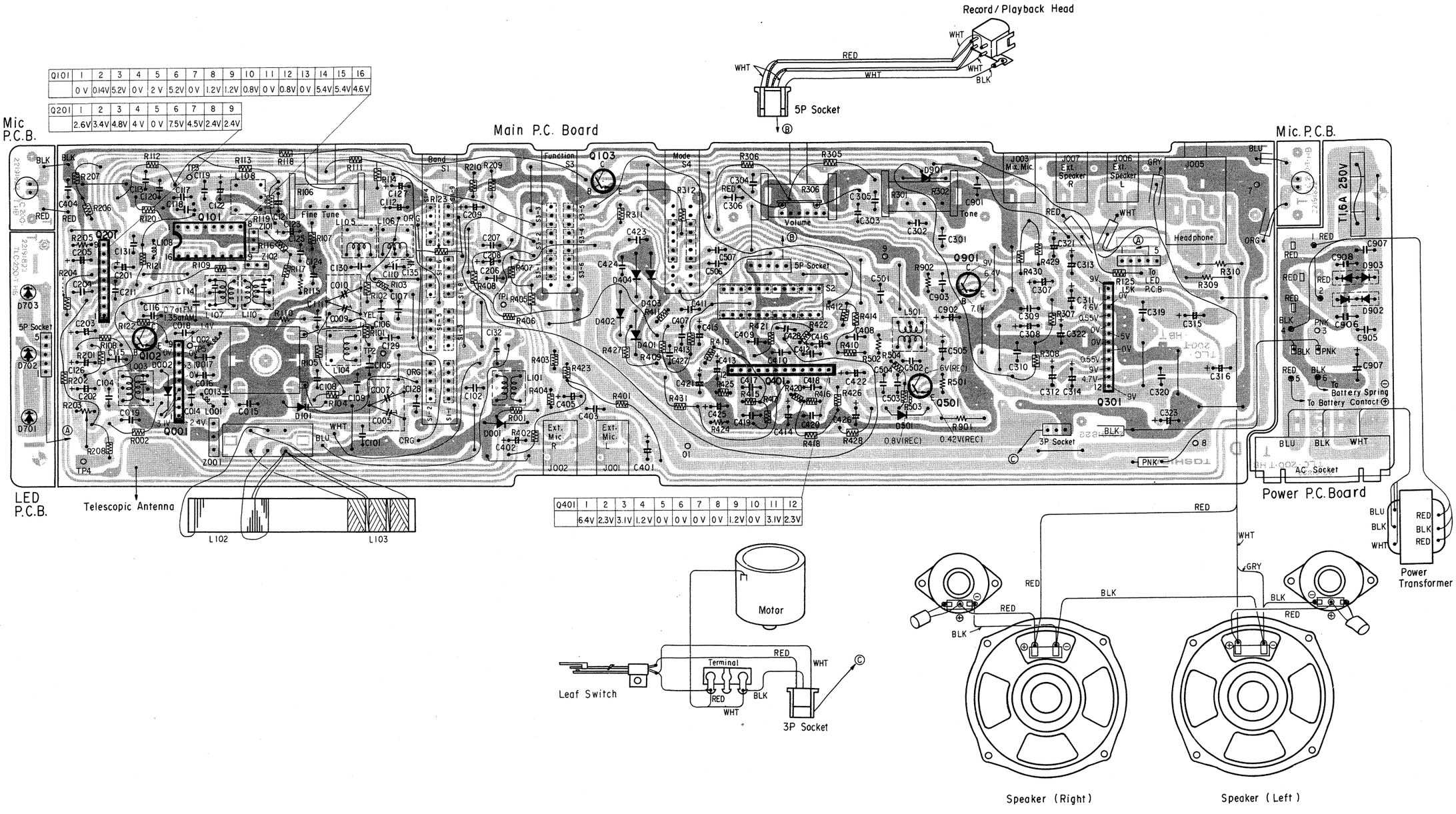
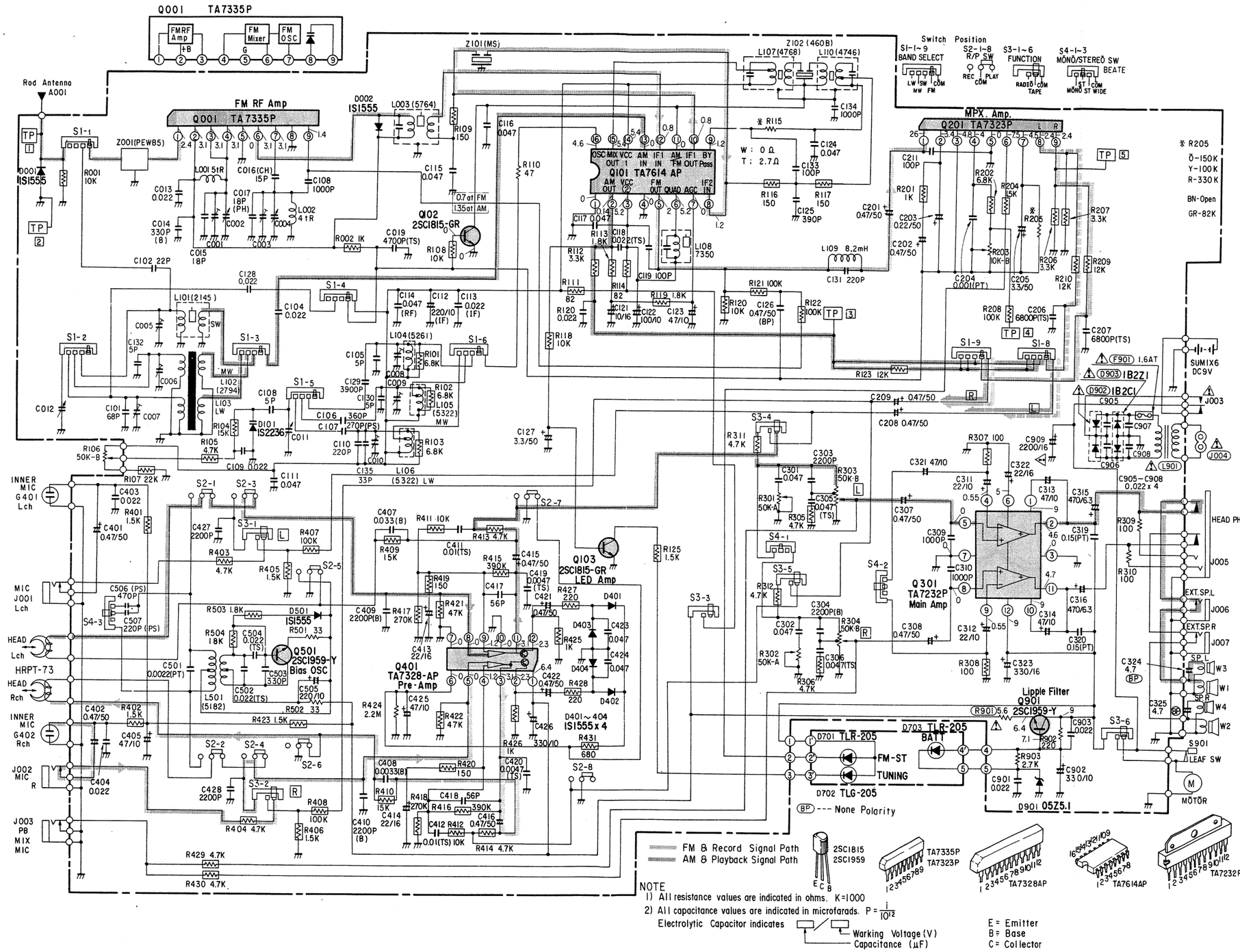


Figure 19.

10. SCHEMATIC DIAGRAM



CAUTION: The ⚠ mark, the symbol No. circled with rectangle in the schematic diagram and the shaded area in the parts list designate components which have special characteristics important for safety and should be replaced only with types identical to those in the original circuit or specified in the parts list.

Figure 20.

RT–S712D

8-2. MECHANISM EXPLODED VIEW (LOWER)

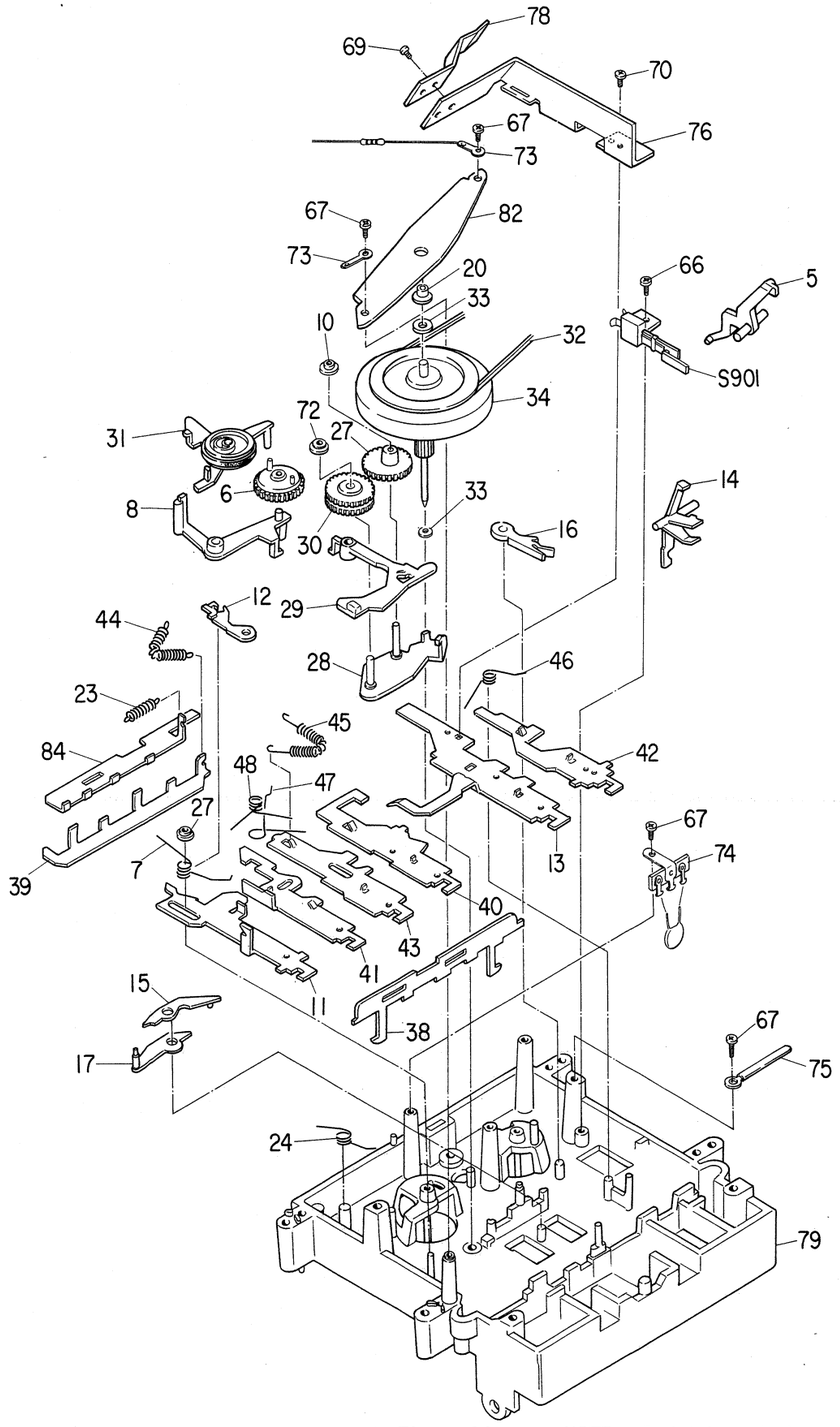


Figure 21. NOTE: Excluded parts in the Parts List are not available as replacement parts.

11. CABINET EXPLODED VIEW

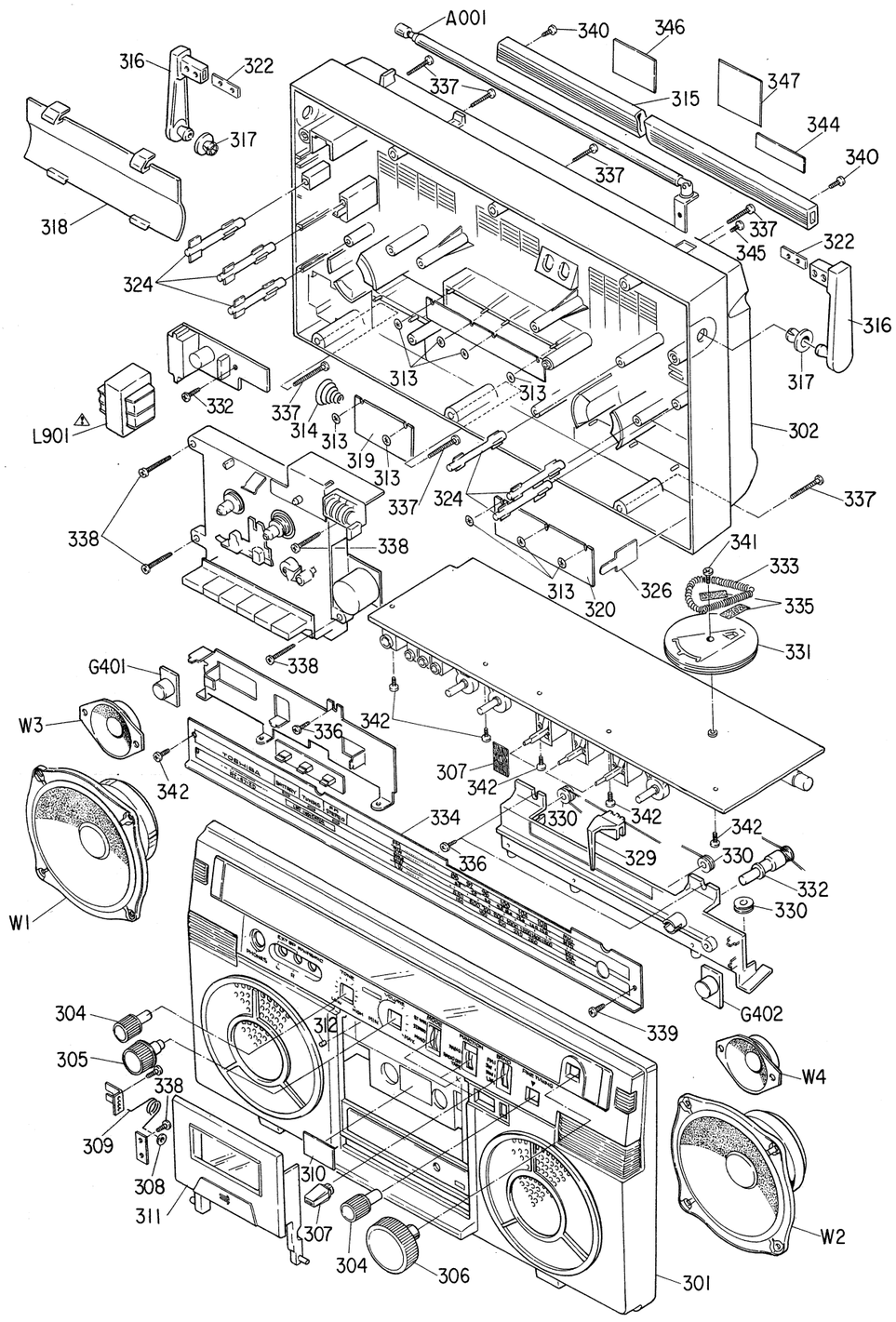


Figure 22. NOTE: Excluded parts in the Parts List are not available as replacement parts.

12. PARTS LIST

CAUTION: The ⚠ mark, the symbol No. circled with rectangle in the schematic diagram and the shaded area in the parts list designate components which have special characteristics important for safety and should be replaced only with types identical to those in the original circuit or specified in the parts list.

Symbol No.	Part No.	Description
		MECHANISM
1	22217351	Head, Record/Playback, HRPT-73
2	25719545	Head Ass'y, Erase
3	25764550	Washer
4	25776215	Spring
5	25782253	Lever, Cassette Up
6	25756247	Gear, ASO
7	25773367	Spring, ASO Lever
8	25782247	Lever, ASO
9	25782249	Lever, Detect
10	25783195	Bushing
11	25741599	Operation Plate, Pause
12	25782173	Lever, Pause Lock
13	25741546	Operation Plate, Record
14	25782248	Lever, Record Lock
15	25782250	Lever, Review
16	25782275	Lever, Record Stop
17	25782294	Lever, Cue
20	25725340	Holder, Flywheel
21	25754338	Hub Plate, Supply
22	25764549	Washer, Flywheel
23	25771617	Spring
24	25773370	Spring, Idler Mount
25	25712348	Hub Plate, Take-up
26	25772578	Spring
27	25756179	Gear A, High Speed
28	25782251	Lever, Rewind
29	25782252	Lever, Fast Forward
30	25719491	Gear
31	25719495	Idler Mount Ass'y
32	25755379	Belt, Drive
33	25764398	Washer
34	25717391	Flywheel Ass'y
35	22707429	Screw, Special, ϕ2.6 x 4.9mm
36	25761238	Cushion
37	25791273	Motor Ass'y
38	25732340	Stop Plate
39	25741783	Slider, Lock
40	25741836	Operation Plate, Rewind
41	25741757	Operation Plate, Fast Forward
42	25741759	Operation Plate, Stop
43	25741841	Operation Plate, Play D
44	25771955	Spring, Lock Slider
45	25771956	Spring, Operation Plate C
46	25773369	Spring, Operation Plate B
47	25773405	Spring
48	25773484	Spring A, Operation Plate
49	25741539	Slider, Head
50	25772585	Spring, Azimuth
51	25773365	Spring, Head Slider
52	25773366	Spring, Pressure Roller
53	25783224	Head Mount
54	25717392	Pressure Roller
55	25755285	Belt, Counter
56	25873222	Counter
57	22703280	Retaining Ring 4
58	25761403	Cushion, Button
59	25779133	Spring, Knob
60	25837504	Button, Pause
61	25837505	Button, Fast Forward
62	25837506	Button, Play
63	25837507	Button, Rewind
64	25837508	Button Record
65	25837509	Button, Stop
66	22707490	Screw, BID ϕ3 x 8mm, Tapping
67	22707301	Screw, BID ϕ2.6 x 8mm
68	22707452	Screw, BID ϕ3 x 5mm
69	22707494	Screw, DTBID ϕ2.6 x 4mm
71	22707322	Screw, DTBID ϕ2 x 10mm
		CABINET PARTS
301	25881151	Cabinet Front Ass'y
302	25881058	Cabinet Back Ass'y
303	25828825	Nameplate, Main
304	25837387	Knob, Tone
305	25837388	Knob, Volume
306	25837389	Knob, Tuning
307	25837390	Knob, Switch
308	25858490	Cover, Switch
309	25735166	Washer, Cassette
310	25773474	Spring, Cassette Cover
311	25824247	Reflector, Cassette
312	25838518	Cassette Cover
313	25858289	Cushion, Cassette Cover
314	22771355	Spring, Battery
315	25825253	Handle
316	25835410	Holder, Handle
317	25835411	Washer, Handle
318	25838520	Battery Cover
319	25839264	Left Retainer, Battery
320	25839265	Right Retainer, Battery
321	25846369	Retainer, Handle
322	25846491	Inner Plate, Battery
323	25846506	Mold Stud

Symbol No.	Part No.	Description
R113	22545182	1.8K ohm (PRC)
R114	22545820	82 ohm (PRC)
*R115	22555279	0 ohm for TA7614AP-W
		2.7 ohm for TA7614AP-Y
R116	22545151	150 ohm (PRC)
R117	22545151	150 ohm (PRC)
R118	22545103	10K ohm (PRC)
R119	22545182	1.8K ohm (PRC)
R120	22545103	10K ohm (PRC)
R121	22545104	100K ohm (PRC)
R122	22545104	100K ohm (PRC)
R123	22545123	12K ohm (PRC)
R125	22545152	1.5K ohm (PRC)
R201	22545102	1K ohm (PRC)
R202	22545682	6.8K ohm (PRC)
R203	22658498	Semi-fixed Variable, 10K-B, Free Run
R204		1.5K ohm (PRC)
*R205	22555104	100K ohm for TA7323P-Y
	22555154	150K ohm for TA7323P-O
	22555334	330K ohm for TA7323P-R
	22555823	82K ohm for TA7323P-GR
		Open Circuit for TA7323P-BN
R206, 207	22545332	3.3K ohm (PRC)
R208	22545104	100K ohm (PRC)
R209, 210	22545123	12K ohm (PRC)
R301, 302	22651543	Variable, 50K-A, Tone
R303, 304	22651536	Variable, 50K-B, Volume
R305, 306	22545472	4.7K ohm (PRC)
R307, 308	22545101	100 ohm (PRC)
R309, 310	22545101	100 ohm
R401, 402	22545152	1.5K ohm (PRC)
R403, 404	22545472	4.7K ohm (PRC)
R405, 406	22545152	1.5K ohm (PRC)
R407, 408	22545104	100K ohm (PRC)
R409, 410	22545153	15K ohm (PRC)
R411, 412	22545103	10K ohm (PRC)
R413, 414	22545472	4.7K ohm (PRC)
R415, 416	22545394	390K ohm (PRC)
R417, 418	22545274	270K ohm (PRC)
R419, 420	22545151	150 ohm (PRC)
R421, 422	22545473	47K ohm (PRC)
R423	22545152	1.5K ohm (PRC)
R424	22555225	2.2M ohm
R425, 426	22545102	1K ohm (PRC)
R427, 428	22545221	220 ohm (PRC)
R429, 430	22545472	4.7K ohm (PRC)
R431	22545681	680 ohm (PRC)
R501, 502	22555330	33 ohm
R503	22545182	1.8K ohm (PRC)
R504	22545183	18K ohm (PRC)
⚠ R901	22545569	5.6 ohm
R902	22555221	220 ohm

Symbol No.	Part No.	Description
R903	22555272	2.7K ohm

ACCESSORIES

Symbol No.	Part No.	Description
⚠ AC01	22176541	Power Supply Cord, TE
⚠ AC02	22176678	Power Supply Cord, TU
AC03	22902859	Owner's Manual, TE
AC04	22902964	Owner's Manual, TU